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ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

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XR-311

EDITORIAL

In the February, 1971 edition of the "old" ARROWHEAD, an editorial appeared announcing the impending publication of a bigger and better ARROWHEAD.

We felt then that CDC was playing an important role in the shaping of our present Army. We were equally certain that this role was not fully understood, neither outside the command, nor inside it as well.

As is so often the case in any large organization, the "big picture" often gets blurred and fuzzy to those charged with the vital, but usually undramatic, tasks of keeping the wheels moving. In CDC, too many of our mid-level executives (translate that to major and lieutenant colonel action officers) found they could not relate the issue of their individual efforts to the final CDC products. This condition existed despite the fact that these products have have had profound influence on the Army .

Few people can work well without motivation. Knowledge that one's work has value is a great stimulus to increased production. Lack of that knowledge can lead to discouragement—not only with one's immediate tasks, but with the organization itself.

Public relations experts would say the problem was one of image. That's an over simplification, but for the purposes of this essay, the term will suffice.

To correct the image problem—to tell those that really needed to know, the fact that CDC was making an important contribution to the Army—required a medium of communication. Such a medium was present in early 1971, the ARROWHEAD.

It was a 16-page multilith production, put together in a magazine format style. And, while it contained what we considered to be interesting articles about what the command was accomplishing, we suspected that it simply was not being read. The publication looked too much like the mass of paperwork that flooded the in-baskets of CDC's action officers and simply did not compete for valuable time; thus the decision to bring forth a publication that would compete.

So, in May, the first edition of the "new" ARROWHEAD was published. Since that time, the Information Office has endeavored to bring to our readers a wide variety of articles about the functioning of CDC, its products and its people. Although the magazine is and must be essentially internally oriented, copies are circulated to commanders of battalion-sized units throughout the active Army. Other outside circulation includes selected members of the DA staff. The Army in the field and Department of Army are CDC's customers, and it occurred to us that our customers might want to know what CDC is doing for them.

All of this is preamble to the point of this essay. Nothing is permanent. Just because a publication has been started does not necessarily mean that it should continue indefinitely.

We feel the ARROWHEAD has made a demonstrable contribution toward enhancing the image of CDC. But, as the publishers, we are understandably biased.

In the not too distant future, some hard decisions may have to be made about the ARROWHEAD. Printing is expensive and in this time of austere resources, expenditures must be justified.

To put it bluntly—unless the ARROWHEAD is needed and wanted, and this need and want can be demonstrated graphically, it probably should be terminated.

Any number of people have indicated, by telephone or in person, that they believe the ARROWHEAD is accomplishing its basic information mission.

All of which is gratifying, but there comes a time when expressions of support must be more tangible.

On the opposite page there is a readership survey.

Be a friend, be a critic, be neutral. But, please, take a minute and send us a completed survey. The ARROWHEAD needs your opinion.

Thank you very much.

ARROWHEAD Readership Survey

Rank/Grade _______________: Assigned to CDC: Yes ________, No ________.

Military ____________________: Civilian ___________.

Please check the answer which best describes your attitude toward the ARROWHEAD.

1. The basic mission of ARROWHEAD is to inform the members of CDC about what CDC is doing. Based on your knowledge of the composition of the command, do you think the ARROWHEAD is doing?

_____ A very good job
_____ A good job
_____ An average job
_____ A poor job
_____ A very poor job

2. An ancillary mission of the ARROWHEAD is to inform CDC's customers—the Army in the field and the DA Staff—about CDC and its products. Considering the fact that ARROWHEAD enjoys only limited circulation outside the command, do you think the ARROWHEAD is doing:

_____ A very good job
_____ A good job
_____ An average job
_____ A poor job
_____ A very poor job

3. If a friend wanted to know something about CDC, would you advise him to read the ARROWHEAD:

_____ No, certainly not
_____ No, probably not
_____ I don't know
_____ Yes, probably
_____ Yes, absolutely

4. If the ARROWHEAD could not be printed again, how much would you miss the magazine?

_____ A great deal
_____ Quite a lot
_____ I don't know
_____ Not very much
_____ Not at all

5. If you had the power of decision, would you vote to:

_____ Terminate the ARROWHEAD as soon as possible.

_____ Reduce the size and scope of the ARROWHEAD and change its editorial direction.

_____ Change the editorial content, but keep the same size.

_____ Make no changes in the ARROWHEAD as it now appears.

_____ Make no editorial changes, but seek more pages and more color.

Please rate the following ARROWHEAD features on the basis of their appeal to you, using 8 as most favorable and 1 as least favorable.

_____ Commanders Call
_____ Developmental Articles
_____ Agency-oriented Articles
_____ The Forum
_____ General Information Articles
_____ The Point of the Arrow
_____ Spot Reports
_____ For God and Country
_____ (reader's choice)
____

COMMENTS: ____

____

____

When you have completed the questionnaire, please clip out, fold, staple and drop it into the nearest mail box.

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HEADQUARTERS
UNITED STATES ARMY COMBAT DEVELOPMENTS COMMAND
FORT BELVOIR, VIRGINIA 22060

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EDITOR

The ARROWHEAD

US Army Combat Developments Command
Fort Belvoir, Virginia 22060

fold and staple

ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

February 1972 No. 36

ARTICLES

4 XR–311 . . . How Far, How Fast, How Fragile?
8 The FIST: A New Punch For The Infantry.
9 Division Data Center: Computer On Wheels
11 PEWD: From Tin Can To Sophistication
14 REMBASS . . . New Dimension In Battlefield Intelligence
16 ALOUD
20 The 500 Mile Club—A Unique Physical Fitness Program
22 CDOC—An Attempt At Combat Developments Perspective
33 BG Connor Retires

REGULAR FEATURES

26 Point of the Arrow
27 For God and Country
28 Spot Reports

PICTURE CREDITS: Page 22–25, Gregory: Front cover by Arnold, All other photos US Army Photo.

ABOUT THE COVER

FRONT: Two XR–311 vehicles stop to engage a target of opportunity at long range with TOW missiles while a third XR–311 moves into position to provide .50 calibre covering fire if necessary.

BACK: A graphic breakdown of the Combat Developments Cycle.

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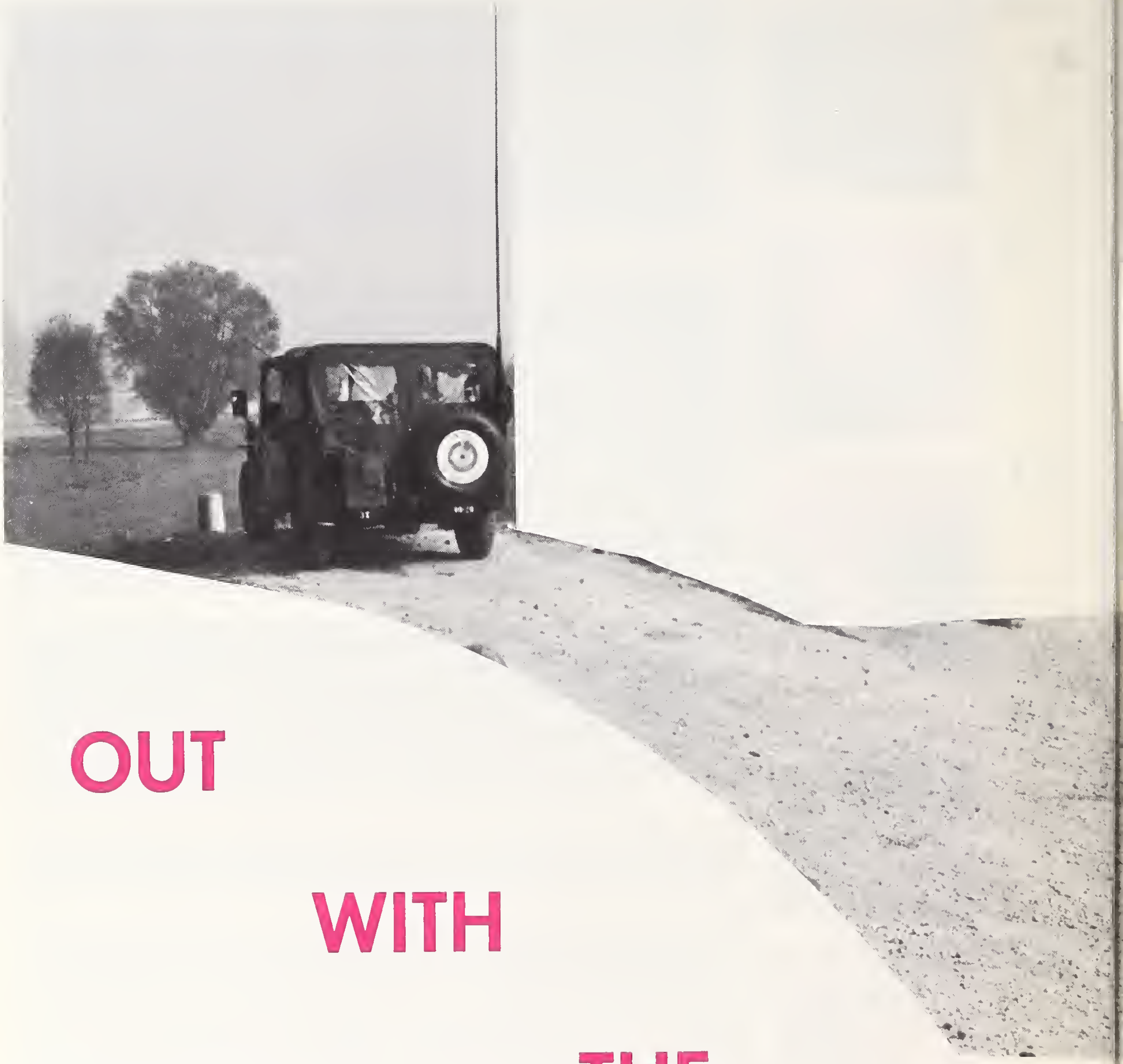


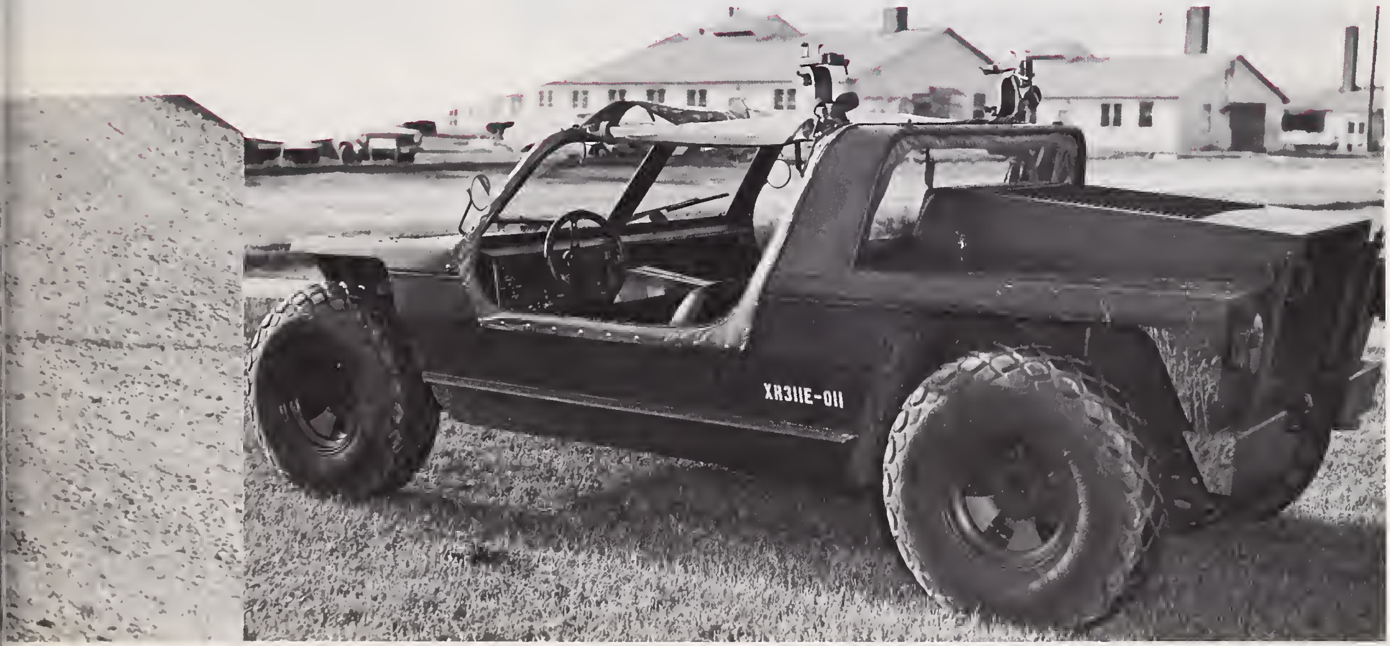
OUT WITH THE OLD . . .

XR-311...

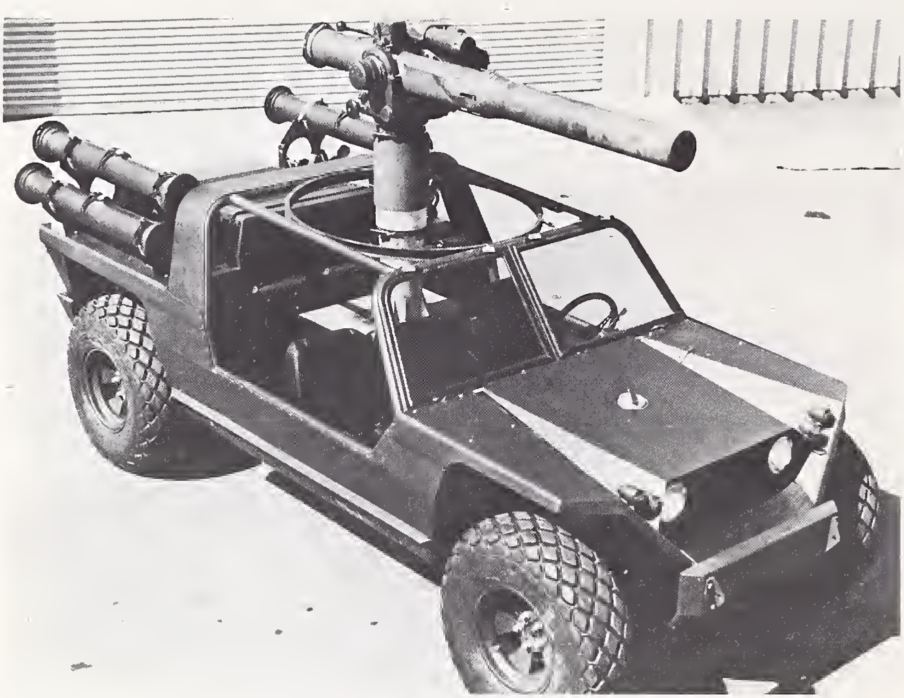
HOW FAR,

HOW FAST,

HOW FRAGILE?



IN WITH THE NEW



In a fluid battlefield situation, mobility becomes one of the keys to successful maneuver. Changing concepts of maneuver demand improved capabilities in mobility. These increasing mobility requirements are the driving forces behind the USACDC's constant search for innovative, practical ideas and new materiel to enhance the Army's ability to move on the battlefield of tomorrow.

Ideas conceived and materiel developed by private firms are monitored by the USACDC for possible application to an identified Army need and are reviewed to determine whether or not they represent sufficient technological advance to warrant further examination.

During detailed examination, the materiel is "challenged" by many questions:

. . . how far and how fast will it go under extremes of weather and terrain?

. . . How fragile is it and how rugged is it?

. . . Is it easier to maintain than what the Army has now?

. . . Is it more reliable and easier to operate?

. . . What is its projected life expectancy in the harsh battlefield environment?

. . . Does it, or will it, perform better than a like item which the Army is already using?

. . . Does the Army have a bona fide need for the item?

. . . Is the item more cost effective and does it offer a significant increase in mobility?

Most of the items reviewed are discarded for three reasons: i.e., they do not satisfy an identified Army need, they are not cost effective, or they do not offer a truly significant improvement in ground mobility capability. Of this process it might be said: "many are culled, but few are chosen."

One of the few items that has been chosen for detailed examination is a vehicle designated the XR–311, sometimes referred to as the "Dune Buggy".

Developed, built and tested by FMC's Ordnance Division, the XR–311 has the capability of meeting many military requirements including reconnaissance, convoy escort, frontline weapons platform, command and control, medical evacuation and military police missions.

It is a ¾ ton payload vehicle with a 215 HP rear mounted V8 gasoline-powered engine, and has a 3-speed automatic transmission. Other features include constant 4-wheel drive,

low pressure "terrain" type tires, disc brakes and a tubular safety cage.

The XR–311 is capable of obtaining speeds of up to 80 mph, and has an operating range of 300 miles. Its unique structure enables it to climb grades of up to 60%; operate in water to a depth of 30 inches; and negotiate 20-inch obstacles.

Its performance was impressive enough to convince the US Army Combat Developments Command that its military potential should be explored further, so ten vehicles were purchased by the Land Warfare Laboratory (LWL) under the auspices of a program known as TECMAT (Test and Evaluation of Commercial Material).

The goal of these trials is to determine the adaptability and suitability of the vehicle concept and design to several diverse roles in the military environment.

During the last half of Fiscal Year 1972 CDC plans to test and evaluate the vehicle's potential in simultaneous trials at Forts Benning, Gordon and Knox. The test vehicle at Ft. Benning will be equipped with the TOW missile system for use in an antiarmor role. Ft. Knox is testing them for use in a reconnaissance role, and they are being tested at Ft. Gordon in a military police role.

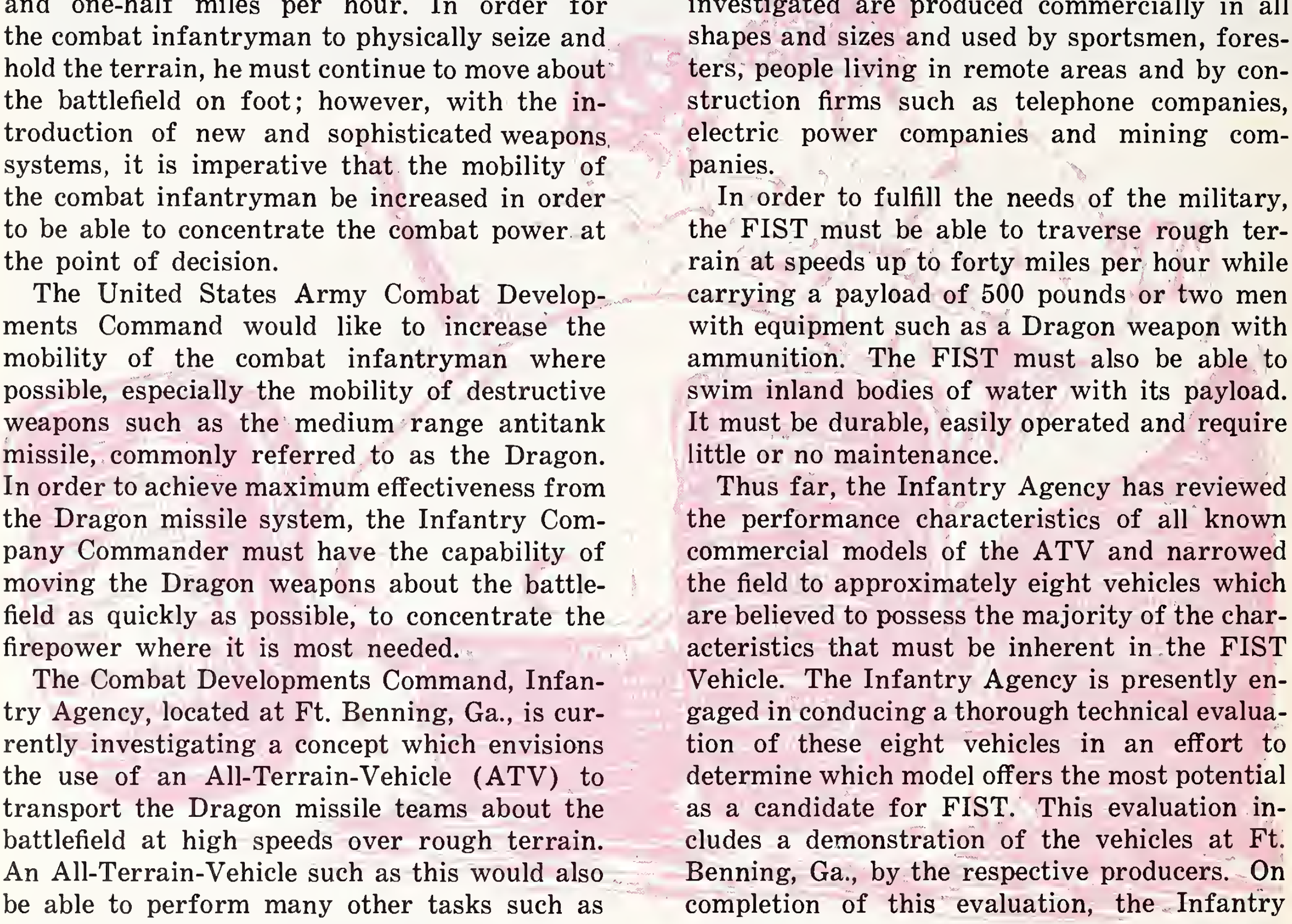
Trial results will be evaluated to determine if such a vehicle would be a benefit or a burden, to determine the doctrinal concepts and techniques for employment, tentative basis of issue to Army units, tactical implication involved in the use of such a vehicle, potential trade-offs, implications and impact on training and logistics provisioning, and implications in the areas of strategic mobility.

A predominance of favorable findings in all of the categories cited will lead to the writing of a formal materiel need (MN) document. The MN will highlight the specific need (s) which a vehicle of this type can satisfy and will outline the essential and desirable military performance characteristics required to fully adapt the commercial item to the Army's changing requirements for increased ground mobility.

If the XR–311 generates the correct answers to all the questions, ("how far, how fast, how fragile"), the Army may well be on the road to partially satisfying its growing demand for increased mobility on the battlefields of tomorrow.

THE FIST

A NEW PUNCH FOR THE INFANTRY



The Roman Legionnaires moved at two and one-half miles per hour. The combat infantryman within the modern armies of the Twentieth Century is still moving at two and one-half miles per hour. In order for the combat infantryman to physically seize and hold the terrain, he must continue to move about the battlefield on foot; however, with the introduction of new and sophisticated weapons systems, it is imperative that the mobility of the combat infantryman be increased in order to be able to concentrate the combat power at the point of decision.

The United States Army Combat Developments Command would like to increase the mobility of the combat infantryman where possible, especially the mobility of destructive weapons such as the medium range antitank missile, commonly referred to as the Dragon. In order to achieve maximum effectiveness from the Dragon missile system, the Infantry Company Commander must have the capability of moving the Dragon weapons about the battlefield as quickly as possible, to concentrate the firepower where it is most needed.

The Combat Developments Command, Infantry Agency, located at Ft. Benning, Ga., is currently investigating a concept which envisions the use of an All-Terrain-Vehicle (ATV) to transport the Dragon missile teams about the battlefield at high speeds over rough terrain. An All-Terrain-Vehicle such as this would also be able to perform many other tasks such as transport for the Artillery Forward Observer, light machinegun teams, lightweight mortars, forward area reconnaissance and security teams.

The concept under investigation is referred to as the FIST, which stands for *Fast Infantry Support Transporter*. The type vehicles being investigated are produced commercially in all shapes and sizes and used by sportsmen, foresters, people living in remote areas and by construction firms such as telephone companies, electric power companies and mining companies.

In order to fulfill the needs of the military, the FIST must be able to traverse rough terrain at speeds up to forty miles per hour while carrying a payload of 500 pounds or two men with equipment such as a Dragon weapon with ammunition. The FIST must also be able to swim inland bodies of water with its payload. It must be durable, easily operated and require little or no maintenance.

Thus far, the Infantry Agency has reviewed the performance characteristics of all known commercial models of the ATV and narrowed the field to approximately eight vehicles which are believed to possess the majority of the characteristics that must be inherent in the FIST Vehicle. The Infantry Agency is presently engaged in conducing a thorough technical evaluation of these eight vehicles in an effort to determine which model offers the most potential as a candidate for FIST. This evaluation includes a demonstration of the vehicles at Ft. Benning, Ga., by the respective producers. On completion of this evaluation, the Infantry Agency plans to recommend that the Army purchase one or more models (not more than three) for Military Potential Testing.

DIVISION DATA CENTER COMPUTER ON WHEELS

BY MSGT RAYMOND DAVIS

Extensive field tests of a new concept in logistics control at division level were conducted at Ft. Carson, Colo. and officials predict the concept may revolutionize the Army's logistics control system.

The evaluation of the Division Data Center (DDC) was conducted from mid-October through mid-November with the view of combining automatic data processing systems for logistics, finance, and personnel and accounting. Purpose of the evaluation was to verify and modify doctrine involved in the new concept under simulated combat conditions.

The DDC came into being as the result of a three-year study of Army logistics by a board of inquiry at Department of Army which was looking for methods to streamline military logistics methods.

The board recommended that the Army automate its logistics function and the Division Logistics System Tests were conducted at Ft. Hood, Tex., during 1967 and 1968, using a skeleton Division Logistics System (DLOGS).

This test recommended the use of two UNIVAC 1005 card processing machines which had been utilized for processing Personnel Management and Accounting Card Processing Systems (PERMACAPS).

The machines would be used in a multipurpose role by controlling logistics input to the division. Transceivers situated at various logistical organizations would help speed the flow of material in addition to maintaining better controls of logistic data.

Late in 1969, Department of the Army approved the new plan of DLOGS.

The DDC became part of the 5th Infantry Division (later reorganized as the 4th Infantry Division) Support Command at Ft. Carson.

Officials at the Combat Developments Command (CDC) said that further evaluation is needed as more parts of DLOGS are being implemented.

Transceivers must be proven effective in meeting data transmission needs of DLOGS and the centralized and decentralized modes must be tested under field conditions.

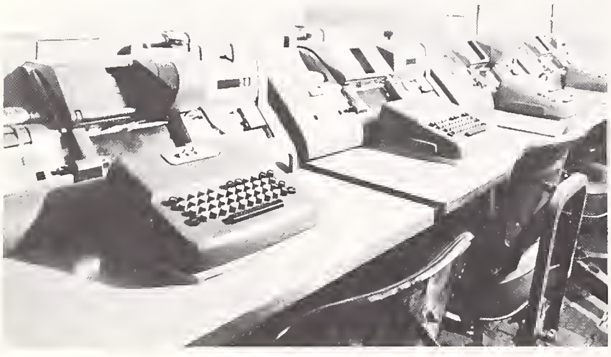
During a recent Command Post Exercise conducted by the 4th Infantry Division, two vans loaded with UNIVAC 1005 card processing equipment were moved into the field to conduct rigid tests of their ability to work under field conditions.

Actual evaluation of the field tests have not been completed, although officials predict the concept will be successful.

The initial DLOGS systems provide an automatic process which will supplant the manual procedures previously used at division levels for the management of repair parts, preparation of various reports and the maintenance of property books. By utilizing automatic data processing procedures, a division maintenance battalion technical supply office can more accurately establish asset status listing of repair parts.

Under the DLOGS Property Book concept, all management for replacement parts throughout the division is kept by the division property book officer and necessary information is kept on automatic data processing listing. At company level, current property will be kept on hand receipt by the company commander.

Daily machine runs of automatic data processing will reveal shortages of equipment or other pertinent information throughout the division.



Computer specialist (above) checks a read-out on the 1005. Pictured at left is a component of the 1005 Univac computer—the type being tested for the Division Data Center. Division Data Center members discuss programming of the 1005 Univac computer (above left).

PEWD:
FROM TIN CAN TO SOPHISTICATION

BY MAJOR ALFRED H. McDONALD

The Infantry has had a long-standing requirement for early warning devices. This requirement has been satisfied by the use of forward listening posts and crude field expedients such as pebbled-filled tin cans attached to trip wires, barbed wire, and other improvisations depending on the ingenuity of the small unit leader.

These expedients, although partially effective in given situations, fail to properly provide a reliable early warning system to the Infantry. The current conflict in Vietnam has re-emphasized this need, particularly at the small unit level. Current doctrine emphasizes offensive actions while the hours of darkness are often devoted to defensive operations to enable rest and resupply. This is particularly true in Vietnam. In many operational areas of future conflicts, operations may be characterized by day attacks and night defensive perimeters. To ensure adequate rest during defensive postures, early warning devices are necessary to augment listening posts and outposts. They will permit better coverage with fewer individuals required to be alert.

With the implementation of the Surveillance, Target Acquisition, and Night Observation (STANO) program, many sensor type devices were developed and tried in Vietnam. These included a multitude of radars, night vision devices, and unattended ground sensors, many of which have proved their worth to the Infantryman. However, with the exception of unattended ground sensors, all of these are dependent upon line-of-sight employment and are hampered by adverse weather and vegetation conditions.

A simple, compact, lightweight early warning device to augment these line-of-sight devices is required in the infantry platoon, company, and battalion. Such a device was described in a Small Development Requirement written by the United States Army Combat Developments Command (CDC) Infantry Agency in 1966. The device was given the name Platoon Early Warning Device (PEWD).

The PEWD will fill the void in the Infantry's need for an adequate early warning system for the rifle platoon and permit the individual infantryman to better utilize time allotted for rest and resupply without sacrificing necessary security.

Since the writing of this document, veterans of the Vietnam War have seen a multitude of sensor/early warning type devices which were introduced into combat under various programs. None of the sensors, however, whether under development or presently type-classified, will be organic to the infantry platoon; yet, the PEWD will be.

The PEWD, which is currently under development by the United States Army Materiel Command's Electronics Command, will weigh less than 13 pounds including all components. It will consist of an enunciator, sufficient sensors to cover at least a 250-meter linear front, sensor spikes for use in frozen or mucky ground, and a carrying case. The sensors will utilize the seismic and magnetic function principles and will transmit the intrusion either by radio frequency (RF) or hard wire.

The enunciator is very lightweight and will fit into the jungle fatigue pocket when the RF mode is used. When the wire option means of

Major McDonald is currently assigned to the USACDC Infantry Agency, Ft. Benning, Ga.

transmission is used, a small auxiliary enunciator is attached to the main enunciator. This dual mode of transmission provides the non-line-of-sight flexibility needed for operation in all types of terrain, weather, and operational conditions.

The PEWD detects the intrusion with an extremely high degree of probability, analyzes the intrusion to determine whether it is a person or vehicle, provides a visual and audible alarm, and displays which sensor has been intruded.

One of the unique features of the PEWD is its low false alarm rate and its ability to discriminate between personnel and vehicles. Once a seismic signal is detected, three measurements are analyzed: duration of signal, amplitude, and time between pulses. If the personnel criteria are met, the device reads out a person intrusion. If personnel criteria are not met, a magnetic sensor is turned on which measures the magnetic field near the sensor, analyzes the signal, and indicates that a vehicle has intruded (1/4 ton truck or larger). If neither of the precise criteria is met, the device assumes a false alarm and makes no transmission.

During all testing to date, the PEWD has proved its very high probability of detection and low false alarm rate even when personnel have tried to trick it.

The sensors utilized in the PEWD are expected to be expandable and present planning calls for use of a lithium battery, which has a 10-year shelf life and will operate without degradation in freezing temperatures down to —50 F. The total PEWD package is expected to cost between $600–$800 in production and is scheduled for fielding during FY 74.

The PEWD will be an Infantry early warning device, organic to each platoon and will provide the Infantryman with a lightweight, accurate and meaningful warning system which can be relied upon when the "chips are down."

CODE
TEST RESET
ON OFF
EXT PHONE
2

TEST RESET
CODE
ON OFF
EXT PHONE
2

REMBASS...NEW DIMENSION IN BATTLEFIELD INTELLIGENCE

BY MSGT RAYMOND DAVIS

A new twist in the old game of battlefield intelligence is gaining increased interest of Army planners at the U.S. Combat Developments Command Intelligence Agency, Ft. Huachuca, Ariz.

Unattended Ground Sensors (UGS), which proved successful in Vietnam, after their introduction in 1967, are now being tested and may be a major breakthrough in enlarging the scope of battlefield intelligence.

Recognizing the vast potential of the sensors in a combat role, the Agency came up with a plan called Remotely Monitored Battlefield Sensor Systems, or REMBASS, which incorporates sensors into the overall combat intelligence planning.

If adopted for use, REMBASS will supplement the Army's present Surveillance, Target Acquisition and Night Observation (STANO) program of total battlefield intelligence.

According to Army planners, REMBASS would give commanders at all echelons a complete picture of an intended battle zone utilizing monitors and, in some cases, the modern technology of computers.

REMBASS is designed to complete and be compatible with all other types of manned and unmanned surveillance systems available to military commanders. Although an important part of the STANO program, emphasis would be placed on REMBASS at combat unit level where sensor information could be incorporated with other intelligence sources to give commanders total-picture intelligence to be converted into target acquisition and other data.

Once the intelligence has been confirmed and the urgency established, the commander may react immediately. At the same time, he would pass critical information on to various echelons of command, all within a few minutes of the actual alert.

Key to REMBASS and the role of sensors in modern warfare is flexibility. Sensor instruments can be used in either defensive or offensive tactics.

Depending upon the tactical situation, terrain and assets available in the field, sensors can be positioned by several methods, including air drop or shell fired into such critical areas as base camps, supply depots or communications and supply routes. This spy-behind-the-lines technique would give commanders a more than adequate intelligence source in monitoring enemy movements. According to Army planners, mortar delivery also has vast potential.

Hand emplacement is considered superior to other delivery methods for various reasons. First, emplacement teams are able to modify the emplacement plan as the situation dictates; secondly, hand emplacement insures maximum sensor concealment throughout the target area.

One of the greatest advantages of hand emplacement is the greater array of sensor types—seismic, magnetic, infrared and acoustic—available to give a more complete intelligence picture.

Two general categories of UGS's are being considered for integration into REMBASS—the line sensors and radio linked sensors.

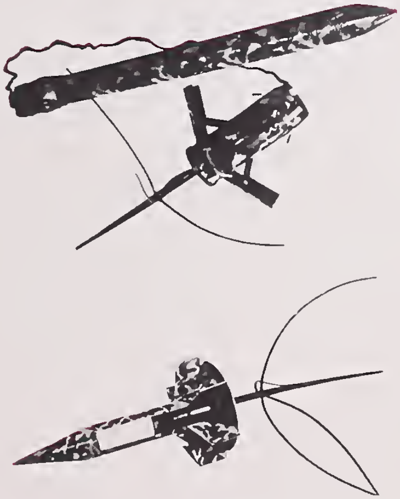
Characterized as a defense monitoring instrument, the line sensor would normally be employed at permanent or semi-permanent defensive positions.

Basic design of the line sensor is a wire which carries an alarm signal from the sensor position to a sensor monitor site. Line sensors work on one of four different modes of detection, including pressure, magnetic, infrared and seismic, each having a different utilization factor.

Radio linked sensors transmit alarm signals through internal radio transmitters which are received at a distant monitoring site. More versatile than it's sister sensor, radio linked instruments can be utilized both offensively and defensively. Detection modes are wide ranging and include seismic, passive, infrared, magnetic, disturbance, acoustic and seismic/acoustic.

REMBASS, when linked with other battlefield surveillance systems may be the answer to the age-old problem of battlefield intelligence.

The unattended ground sensors (UGS) shown here are the Aerial-Delivered Seismic Device (ADSID) (top) and the Acoustic and Seismic Intrusion Detector (ACOUSID) (bottom). These sensors will provide invaluable intelligence to mobile armor units seeking to maintain contact with an enemy force.



ALOUD

BY SP5 STANLEY T. LOVELADY

Another function has been added to the already long capability list of the versatile helicopter. Now it can talk.

This capability has been effected by the addition of the AN/U1H–6 Airborne Loudspeaker system, appropriately called ALOUD. It is composed of a double-bank public address system mounted on rotary-wing aircraft and has been recently tested by the Army Combat Developments Experimentation Command (CDEC) which is headquartered at Ft. Ord. It has been determined to be the most effective procedure to broadcast short messages in psychological and civil operations.

The experimentation, conducted over the rolling hills of the Hunter Liggett Military Reservation, was under the direction of Colonel James F. Fulton, Jr., Chief of CDEC's Project Team III and was conducted by Major John E. Watts.

The CDEC Project Team was to provide data and associated analysis regarding the effectiveness of the aircraft-to-ground broadcasting abilities of ALOUD to the Combat Developments Command and to the CDC Special Operations Agency (USACDCSOA).

The ALOUD system tested consists of four amplifiers, four loudspeaker units and the necessary connecting cables. The speakers were mounted externally on the UH-1H

Continued on next page

Sergeant Ronald E. Tasker (above), "D" Company, 41st Infantry, makes some final adjustments on the control of the Public Address system on the "Huey", which uses externally mounted speakers in preparation for testing of the ALOUD system at Hunter Liggett Military Reservation.

("Huey") helicopter but were mounted internally on the OH-58A ("Cayuse"), using a mount which was specially designed by CDEC.

The "Huey" was supplied by the Air Cavalry Troop at Ft. Lewis, Wash., and the "Cayuse" by III Corps at Ft. Hood, Tex.

The ALOUD system was tested by broadcasting in three different flight situations. Each helicopter made a straight "fly by", a banking flight and a broadcast while hovering.

Four-man listening teams were placed at surveyed positions along a 6,000 meter course, to act as the target audience, recording their levels of reception. These teams were spaced 500 meters apart and broadcasts were made from distances of minus 500 meters to plus 6,000 meters—on both sides of, and perpendicular to, the line of listeners.

Broadcasts were made from each aircraft during each flight situation (straight, banking, hovering) at altitudes of 2,000, 3,000, 4,000 and 5,000 feet. This gave 12 different flight/altitude combinations, from which data was compiled and recorded and required approximately 118 hours flying time to complete the testing.

In order to broadcast a message which would be easy to record and score, as well as contain messages of equal diffculty and familiarity to the listeners, the Army phonetic alphabet (Alfa, Bravo, Charlie, etc) was used.

The recorded messages were specifically designed to be meaningless, so that the listener's reception of the message and not the understanding of the message was tested. The messages were also broadcasted in random order, by different announcers, on different days.

But there is more to an experiment than simply flying by some listening teams, broadcasting a message and recording the reception results.

Motivation of the listening team members had to be considered as did the qualifications of the helicopter pilots being used. Weather and terrain effects, along with other variables, had to be evaluated to make the experimentation as complete and unbiased as possible.

Several interesting conclusions were reached through this experimentation.

For example, the most effective type of flight situation—from the broadcast reception standpoint—was the hover, especially when broadcasts were made from the 3,000 and 4,000 foot levels.

Yet, what is good for the goose is not always good for the gander and it was discovered that it is difficult to maintain a hover in the wind. There is also the projected use of ALOUD in a combat zone, which could make keeping a helicopter stationary a risky situation.

The banking flight path was found to give a good level of reception, especially at the 2,000 and 3,000 foot levels. This was also found to be the easiest to handle, operationally.

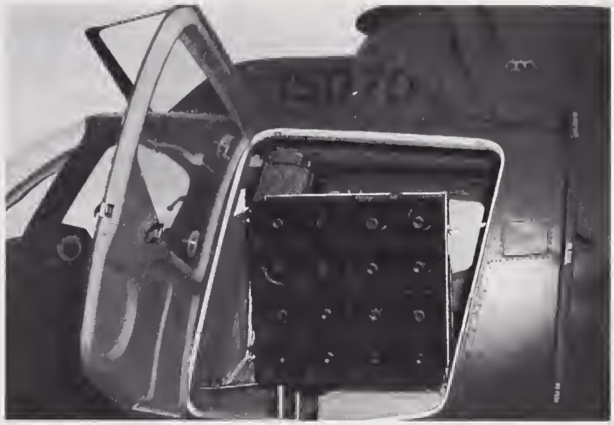
The least effective of the three flight situations, the straight "fly by," became more effective as it increased altitude, being most effective at the 5,000 foot level.

The final report on ALOUD includes everything from recommendations for volume and setting of controls on the PA system to observations on the effects of variables in human factors.

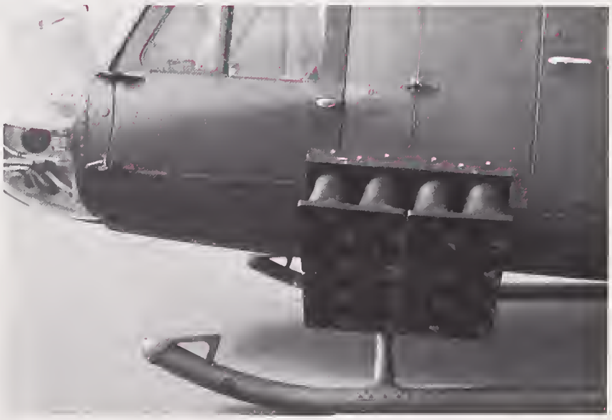
CDEC's experimentation with the ALOUD system has combined the greatest amount of information possible from its instrumentation and experimentation resources to provide the Army with empirical data about a system which will undoubtedly be of much assistance in the conduct of psychological and civil affairs operations in the future.

Other possible uses include ALOUD employment during civil disasters such as floods, hurricanes, earthquakes, etc., and for use during riots, traffic tie-ups and other situations, where communications from above will save time—and lives.

SP5 Lovelady is currently assigned to the Combat Developments Experimentation Command at Ft. Ord, Calif.



This close-up shows a front view of the ALOUD speaker system mounted on the Cayuse ready for testing. The mount for the interior system was designed specially for the ALOUD tests by the CDEC team.



The OH–1H ("Huey") helicopter, equipped with externally mounted speakers, stands ready to perform tests of the Airborne Loudspeaker System (ALOUD) during recent experimentation at Hunter Liggett Military Reservation.

A UNIQUE PHYSICAL FITNESS PROGRAM

"THE 500 MILE CLUB"

BY LT. ROBERT H. DAVIS

The United States Army Combat Developments Command, under the direction of Lieutenant General John Norton, has placed great importance on the physical condition of its personnel. One of the recent innovations is the HQ CDC's 500 Mile Club.

The basic foundation upon which the program is based is aerobic exercise. The word "aerobic" comes from Greek and means "life with air, or oxygen". In exercise terminology it refers to those large muscle exercises or activities which require a consumption of large amounts of oxygen for moderately prolonged periods. Such exercises as running, cycling, swimming or rowing are classified as aerobic exercises if performed over an extended period of time.

Research has been conducted on many types of exercises and exercise programs and concludes that there is no easy road to the development and maintenance of physical fitness. All of the 60-second-a-day exercise programs are fables that disillusion the unsuspecting public. These programs are worthless in improving the conditions of the cardiovascular and respiratory systems.

To be effective an exercise program must be vigorous enough and long enough to tax these systems and produce a conditioning response. The effects of this valuable conditioning response are many and include the following:

- It increases the efficiency of the lungs, enabling them to process more air with less effort. During exhausting work, a conditioned man may breathe considerably more air than a de-

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conditioned man, thus providing his body with more oxygen for the energy producing process.

- It increases the efficiency of the heart. The heart grows stronger and pumps more blood with each stroke, thus reducing the number of strokes necessary. A conditioned man may have a resting heart rate that is 20 beats per minute slower than the rate of a deconditioned man, saving as many as 10,000 beats in one night's sleep.
- It increases the size and probably the number of blood vessels that carry blood to the body tissues, thus saturating the tissues throughout the body with energy-producing oxygen.
- It increases the total blood volume, again providing more means for delivering more oxygen to the body tissues.
- It improves the tone of the muscles and blood vessels, changing them from weak and flabby tissue to strong and firm tissue, frequently reducing blood pressure in the process.
- It changes fat weight to lean weight often toughening up the body without actual weight loss.
- It increases the upper limit of oxygen consumption by increasing the efficiency of the means of supply and delivery. In the act of doing so, it is improving the overall condition of the body—especially its most important parts, the lungs, the heart, the blood vessels and the body tissue—building a bulwark against many forms of illness and disease!

The 500 Mile Club is operated strictly on a voluntary basis. Individuals or units may enter the program by submitting an entry form to their local sponsoring agency.

The program incorporates the honor system wherein each entrant will record his own times and distances. When a participant reaches a mileage plateau he simply submits his record sheet for appropriate action.

One of the major aspects of this program is the incentive awards system which contributes to participants' motivation and progress. Mileage certificates will be awarded to participants completing 50, 100, 200, 300, 400 and 500 miles of running or swimming.

The actual running program consists of three phases: (1) Preparatory phase for those who have recently led an inactive life; (2) conditioning phase for those who have completed the preparatory phase, or who have actively engaged in a conditioning program but cannot walk/run a mile in 8½ minutes without undue stress; (3) and the sustaining phase for those who can run a mile in 8½ minutes or less without becoming overly fatigued. The rate of progression in all phases is arranged to accommodate individual differences and developmental plateaus. An increase in speed is accompanied by a decrease in the number of repetitions (frequency per week). A repeat of time goals is accompanied by an increase in number of repetitions or an increase of distance. The result is a constant progression of speed or distance, which in turn results in a progressive increase of endurance. The goal of the program is to progress to the sustaining phase and continue running a minimum of 7 to 10 miles per week to insure development of a minimum level of physical fitness.

Although the program is basically very sound, it will take more than mere verbiage to instill and maintain physical fitness within the Army—it will take command emphasis and the dedication of all personnel. Physical fitness is not something that just happens—it requires self-sacrifice determination, and desire! President John F. Kennedy put it very well when he said, ". . . if the body grows soft and inactive, if we fail to encourage physical development and prowess, we will undermine our capacity for thought, for work and for the use of those skills vital to an expanding and complex America. Thus, the physical fitness of our citizens is a vital prerequisite to America's realization of its full potential as a nation and to the opportunity of each individual citizen to make full and fruitful use of his capabilities."

CDOC—AN ATTEMPT AT COMBAT DEVELOPMENTS PERSPECTIVE

BY LT. BOB GREGORY

General Norton (pictured above) exemplifies the informal working atmosphere in the Operations Center.

Combat Developments Command staff officers are adding a new acronym to the formidable list in the CDC lexicon. CDOC, not to be confused with CDEC, CDOG, CMIS, or CPO, is the newest addition to the CDC operational structure.

CDOC stands for the Combat Developments Operations Center, and was established to gather and portray to top level management an accurate and current overview of the general status of the combat developments effort. In the words of Major James C. Justis, who heads the CDOC, "The Combat Developments Operations Center's purpose is to provide a management tool to top level management and to CDC which will allow us to formulate a management process from data that is gathered from all the diverse elements of CDC—the agencies, the groups, the directorates."

The uniqueness of this fledgling operation, which is under the auspices of the Operations Division of the Office of the Deputy Chief of Staff for Operations, is that it is the first attempt by CDC to centralize the information flow on the myriad of on-going actions throughout the command. This central clearing house for critical information in time will be able to identify and track high priority actions throughout CDC.

The ability to focus upon the most critical actions, to show the inter-relationships of these actions with other on-going actions, and to present this in capsule form to the Commanding General should mark the CDOC as a major advancement in opening communications channels throughout the command. Further, the CDOC will illustrate to the Commanding General those areas that need immediate action and those areas that need his future personal attention along with that of top level management.

In the past, to keep himself abreast of the progress of the command's projects, the Commanding General depended upon information gathered through briefings from action officers. While these briefings were comprehensive *per se,* they often failed to provide the over-all picture of these certain actions' inter-relationships and their contribution to CDC's mission. The mission of the CDOC is to fill this gap.

When the CG meets with the CDOC personnel, he is given a graphic presentation of selected critical on-going actions plus other subjects of high-level management interest. Inter-relationships with other on-going projects and the relationship to the over-all CDC

PFC Gary Cavatino (right) and Lt. Jim Loudermilk (left) put the final touches on a CDOC diagram before it is presented to the CG (above). The CDOC staff (below) familiarizes themselves with another intricate diagram.

Lt. Bill Vaughn (left), one of the two lieutenants assigned to the CDOC, discusses one of the Center's many charts with LTC Paul Malone, Chief of the Operations Division.

Sp4 Bob DiGiacmo,(above left) is literally knee deep in charts and diagrams before the CG's briefing. Major Justis conducts a final run through of the briefing with his staff before it is presented to the command group. (above right).

mission are clearly illustrated so that he can plan the action needed to be taken by his staff. Individual briefings still have great value but only CDOC can tell him how one action fits into the whole management picture.

The CDOC is a working center where one can sit down, roll up his shirt sleeves, and study the many graphic presentations of action information. As Major Justis put it, "We have tried to create a relaxed atmosphere where some military decorum can be set aside so that the exchange of information can flow more smoothly. The CDOC should be a hub of critical, current information. Our purpose is to make this information available to all who desire it. The more relaxed the atmosphere, the better we can accomplish our tasks."

When one views the staff of the Operations Center, he will immediately be struck by the youthfulness of the personnel. It would seem logical that experienced personnel who have been with the command for a long time would be best suited to handle the Center. Considering the personnel constraints CDC faces, these more experienced people are desperately needed to conduct the developmental effort. The staff currently consists of a major, two lieutenants, and two enlisted men. As Lt. Col. Paul Malone, Operations Division Chief, says, "These are highly motivated and talented men. In fact, both of the lieutenants hold masters degrees. The CDOC duty holds challenges and satisfactions for them. Even though it is a small staff of young officers and enlisted men, it is a staff that is capable of carrying out the CDOC's mission. I have confidence in them."

A logical question one might ask is why do we (CDC) need an operations center? CDC works with intangible products of a highly diverse nature. At any one time there are between 1,600 and 1,800 on-going actions in progress throughout the command. If CDC worked with tangible objects, it would be far simpler to view the object or thing to see its status, its progress, etc. But, working with intangibles —ideas, theories, concepts, and the like, CDC is dependent upon written or oral reports on the progress of these many actions. "We can't look at an idea as we can a new vehicle," stated Major Justis. For this reason CDC, must have current, usable information concerning these actions for top level management in order that key individuals may keep abreast of the status of these actions. The CDOC must furnish that

FUNCTIONS OF THE CDOC

1. PORTRAYS ON A CONTINUOUS BASIS SELECTED INFORMATION CONCERNING THE CURRENT STATUS OF THE COMBAT DEVELOPMENTS PROCESS, PLUS RELATED MANAGEMENT INFORMATION OF COMMAND SIGNIFICANCE.
2. PRESENTS TO SELECTED INDIVIDUALS OF TOP LEVEL CDC MANAGEMENT ON A SEQUENTIAL BASIS A PROGRAMMED AND INTERRELATED OVERVIEW OF COMBAT DEVELOPMENTS ACTIVITIES, UTILIZING THE COMMAND PRIORITY OBJECTIVES, AND THE SIGNIFICANT ACTIONS LIST AS PRIMARY FOCI OF PRESENTATION.
3. MAINTAINS INFORMATION ON THE CURRENT STATUS OF SELECTED COMBAT DEVELOPMENTS AND MANAGEMENT ACTIONS REQUIRING PARTICULAR COMMAND ATTENTION.
4. PROVIDES DAY-TO-DAY GUIDANCE TO THE CDC CHAIN OF COMMAND BASED ON CDC OPERATIONS.
5. MAINTAINS LIMITED HISTORICAL RECORDS OF CRITICAL EVENTS IN COMBAT DEVELOPMENTS AREAS (6 MONTHS).
6. PROVIDES A FACILITY FOR THE FAMILIARIZATION OF VISITORS TO CDC ON THE COMBAT DEVELOPMENTS AND CDC MANAGEMENT PROCESSES.

information to top level management.

With the use of charts, time tables and other graphic devices, the CDOC can picture the progress of the concept or idea. The CDOC then is the focal point where all management information can be physically displayed to the command group. "The CDOC compiles all the different tasks of CDC and solidifies them into an over-all picture of where CDC is going and how well it is getting there," said Major Justis.

The physical layout of the Center is a mere 15X16 foot room. "At the moment space is at a premium here," commented Major Justis. "However, we can accommodate eight persons in comfort."

The center contains projectors for slides and film clips and the walls are wall-to-wall charts and timetables. The Center is completely manually operated in this, its austere version. Plans are being formulated for a more sophisticated version. The ultimate goal is for a fully automated center with information available at the push of a computer button. This, however, is well in the future.

The austere version has many expectations. According to Major Justis, "The CDOC will flag problems before they become severe. With such an alert to examine and digest the significance of these problems, the Command Group will have an opportunity to take action in a timely manner. With such perspective, CDC planning toward its goals and priorities can be more effectively coordinated."

CDOC is still feeling its labor pains but already has shown great promise. Lt. Col Paul Malone, Operations Division Chief, sums it up well, "The Operations Center is in its infancy and has a long way to go before it becomes a fully effective tool for CDC management purposes. Considering the somewhat nebulous nature of the CDC product, it is difficult to portray the full scope of our problems and progress in an accurate, timely, and useful form. With experience, and not without some frustrations, we will progress with assistance from the entire CDC staff. I firmly believe that, in time, CDC will have in CDOC an activity which will be useful and valuable to, not only top level management, but to the entire command."

The Point of the Arrow

FEBRUARY QUESTIONS

1. The rate at which binary digits, or pulses representing them, pass a given point on a communications line or channel is the definition of ______________________ in a digital computer.

2. The necessary stimulation for a chemical laser could be provided by the chemical reaction of __________ with __________.

3. In high energy lasers, which laser technique has the greatest theoretical efficiency, i.e. the greatest power output for the least input?
   a. Ruby rod
   b. Chemical
   c. Gas dynamic
   d. Electric discharge

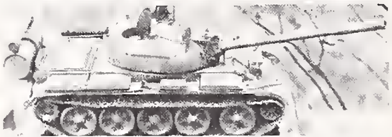
4. Increased cannon artillery ranges can be attributed to improved technology in which of the following areas? (select 2)
   a. Increased chamber volume and tube length
   b. Auto-frettage techniques
   c. Use of bore evacuators
   d. Improved aerodynamic shapes for projectiles

5. There are several memory devices developed by which a computer can "store information". Which of the following below is not considered a memory device?
   a. Magnetic drums
   b. Magnetic discs
   c. Magnetic isomers
   d. Magnetic tapes

JANUARY ANSWERS

A. The Chinese Communists recently achieved a ______________________ capability that places them in a position to become a superpower. However, its most significant military resource is ______________________.

ANSWER: nuclear; manpower.



B. What am I?

ANSWER: Soviet T-55 Medium Tank.

C. The Advancing Blade Concept (ABC) counter rotor system theory of helicopter flight is based upon? (true or false) Equilization of lift on both sides of the rotor system (left/right) to eliminate effects of retreating blade stall.

ANSWER: True

D. Of the following computer languages, which was inspired by Department of Defense as a machine independent language, which would cut across the language boundaries of all computers? (1) FORTRAN (2) COBOL (3) ALGOR (4) BASIC.

ANSWER: COBOL

E. What is an Intensified Confirmatory Troop Test (ICTT)?

ANSWER: An intensive, short duration test by the user of early production, or prototype models of major systems in a realistic tactical environment. The ICTT is characterized by controlled testing and employs scientific methods and techniques in design, execution and analysis. The ICTT is intended to ensure maximum practicable system effectiveness and is achieved prior to full production into the force, to provide a basis for establishing the quantity of the system to be procured, and to verify the tactics, doctrine, basis of issue, training requirements, personnel requirements and logistic support relative to the tested system.

For God and Country

The secret things belong unto the Lord our God: but those things which are revealed belong unto us, and to our children forever, that we may do all the words of this law—

Deut. 29:29.

If God would only reveal Himself! If He would only make plain His will and show me my path! Why does He permit the horror of war and wholesale destruction? What is the meaning of tremendous changes that are turning the world upside down? Thus we complain in the quiet of our own thinking. The lack of ability to see the whole picture and the ultimate purpose of all events tends to make us rebellious.

Then it is that we need to learn the lesson of our text. There are some things secret. They do not belong to us. We are not able or ready to know them as yet, and we must not let our speculation or consternation regarding the unknown cause us to neglect the things that are revealed. For they belong to us. They are ours to do, and only by doing the things that are revealed shall we ever come to know the things that are secret. We walk by faith—not by sight.

So we must live by the known till we find the unknown. Let it be our everyday habit to inquire of God regarding our plain and well-known duties. Let us listen to Him in the morning, and then live according to His plain commands during the day.

PRAYER

O Lord God, Thou art the Ruler of the world, and in Thy wisdom Thou hast done all things well. Teach us to trust in Thy power to govern the world. Take away from us all impatience and self-will and give us grace to serve Thee faithfully under all circumstances, and to find our rest and security in doing Thy gracious will. Reveal unto us more and more of the mysteries of the unknown through our faithful performance of our known duties. Through Jesus Christ. Amen.

OTTO H. BOSTROM, Hamma Divinity School, Springfield, Ohio.

SA HONORED

Thomas D. Cunningham, chemical adviser at the Chemical - Biological - Radiological Agency, a part of Combat Developments Command, has been appointed permanent standing chairman of the quadripartite working group for chemical and biological equipment.

The group is an international organization oriented toward collaboration and mutual sharing in development of defensive material, doctrine and procedures. In his new assignment, Mr. Cunningham will coordinate the efforts of the member nations—the U.S., Great Britain, Canada and Australia.

Mr. Cunningham will also continue in his present job as scientific adviser for chemical systems for the CBR Agency at Ft. McClellan. A retired Army Reserve officer, he has been with the agency since its inception, and was formerly with its predecessor—the old Chemical Corps Board.

Mr. Cunningham, a chemical engineer, and a member of the joint technical coordinating group committee said, "we are evolving concepts and doctrine concerning how we (the U.S. and the ABC countries) will fight together." Mr. Cunningham continued, "by coordinating requirements and developments we can end up with significant savings of manpower and funds."

Spot Reports

CDEC Visitors

Ft. Ord, Calif. . . . Recently, the Army Combat Developments Experimentation Command hosted many visitors from the Pentagon, from stateside posts and from overseas.

The Honorable Robert L. Johnson, Assistant Secretary of the Army for Research and Developments, visited the command and was escorted on a capsulized, but comprehensive, tour of the CDEC field laboratory on the Hunter Liggett Military Reservation by CDEC's commander, Brigadier General Ray Ochs.

Brigadier General R. J. Fairfield, Jr., commanding general of a sister command to CDEC, the Army Combat Developments Command Concepts and Force Design Group at Alexandria, Va., also visited the command for briefings at CDEC's headquarters at Ft. Ord and at its field laboratory. He was accompanied by Colonel John P. Barker, commanding officer of another sister command of CDEC's, the CDC Special Operations Agency, Ft. Bragg, N.C.

From CDC's Infantry Agency at Ft. Benning, Ga., Major J. P. Hughes visited the command as did Mr. B. Klees, Project Manager of the Aviation Systems Command in St. Louis, Mo.

From the Republic of Vietnam, 10 officers headed by Brigadier General Phan Dinh Soan traveled to CDEC for orientation on the command.

Colonel Adulsock Mitrabhuckdi of the Military Research and Development Command, Royal Army of Thailand, visited CDEC with Lt. Col. J. G. Ton of the Advance Research Project Agency, Washington, D.C.

CDEC, being a unique command—the only command in the Army or in military history with the mission of improving the Army of Today while designing the Army of Tomorrow—has many visitors. In 1971, there were more than 700 visitors to the command.

Dragon

Ft. Benning, Ga. . . . Beginning January 1972, and lasting through October 1972, the new XM47 Surface Attack Guided Missile System, nicknamed DRAGON, will be tested at Ft. Benning. A new Expanded Service Test, a first in the Army, simultaneously testing equipment, doctrine, and tactics will be a joint project of the Infantry Agency, the Infantry Board, the Infantry School, the Infantry Center, and the 197th Infantry Brigade. DRAGON is a manportable (approximately 30 pounds) wire-guided antitank missile with disposable launcher but reusable tracker unit. The gunner just keeps the cross hairs on the target until impact. It has an increased effective range and kill probability over the 90mm Recoilless Rifle which it will replace. DRAGON's rugged design and easy maintenance (with GO/NO-GO checks) will make it a welcome addition to the rifle platoon.

PALS GP Visitors

Ft. Lee, Va. . . . The Personnel and Logistics Systems Group, commanded by Brigadier General Ross R. Condit, Jr., hosted 10 Republic of Vietnam (RVN) officers in late November as part of their orientation tour of the United States.

Among the group of visiting officers were: Brigadier General Phan Dinh Soan, Chief Artillery Command (Chief of Artillery), Colonel Tran Dinh Tho, Assistant Chief of Staff J3/JGS/RVNAF (Assistant Chief of J/Staff), Colonel Tran Cong Lieu, Commanding Officer of Ranger Branch (Division Commander), Colonel Phan Hoa Hiep, Chief of Armor Command (CG, Armor Center), Colonel Nguyeen Huu Toan, Director, Joint Operations Center, JGS/RVNAF (G3 Joint Operations Center), and several G–3 officers from the RNV-Marines.

The group toured the City of Richmond, Va., as a part of their orientation tour. The tour included the Virginia Museum, Capital, old and new City Hall, City Coliseum, Virginia Memorial and St. John's

Chapel.

The RVN officers were briefed by Brigadier General Condit and his staff on PALSGP's mission, organization, function and accomplishments.

The CDC Supply Agency also briefed the visitors on Materiel Handling Equipment and Trans-Hydro developments.

The RVN officers were guests at a luncheon hosted by General Condit, after which they made a courtesy call on the Post Commander, Major General John D. McLaughlin.

The RVN officers continued their orientation tour with a visit to the Office, Director of Defense Research and Engineering in Washington, D.C.

WAC Director

Ft. Leavenworth, Kan. . . . Lt. Col. Claire Archambault (pictured above, left), Secretary of the General Staff of the CDC Combat Systems Group at Ft. Leavenworth, Kan., was the escort officer for Brigadier General Mildred C. Bailey (right), Director of the Women's Army Corps, when the general and Sergeant Major Mary E. Richmond (center) of the WAC Director's Office, visited Combat Systems Group and the Command and General Staff College. General Bailey was at Ft. Leavenworth to visit with members of the WAC detachment and WAC officers assigned to the Command and General Staff College.

Colonel Archambault is one of the many WAC officers assigned to the Combat Developments Command in top level management positions. She is the senior WAC officer at Ft. Leavenworth.

General Bailey proudly sports the latest fashion trend in the WAC wardrobe. This new beret is now part of the standard WAC uniform.

Orientation

Ft. Lee, Va. . . . At the personal invitation of Brigadier General Ross R. Condit, Jr., Commanding General of the US Army Combat Developments Command Personnel and Logistics Systems Group, Lieutenant General William E. DePuy, Assistant Vice Chief of Staff of the Army, visited the group recently for an orientation on the roles, mission and significant accomplishments of PALSGP.

Upon his arrival by helicopter, he was greeted by Major General John McLaughlin, Commanding General, US Army Quartermaster Center and Ft. Lee, and General Condit.

Other guests included Major General Ralph J. Richards, Jr., Assistant Comptroller for Finance and Comptroller Information Systems, Office of the Chief of Staff; Brigadier General Carl V. Cash, Director of Personnel Systems, Deputy Chief of Staff for Personnel; Brigadier General Theme T. Everton, Assistant Deputy Chief of Staff for Logistics, Doctrinal Systems. Brigadier General Robert L. Fair, Director of Management Information Systems, Office Vice Chief of Staff; Brigadier General Edward F. Gudgel, Jr., Commanding General, Intelligence and Control Systems Group and Colonel William Wade, Commanding Officer, Logistics Doctrine Systems Readiness Agency (LDSRA).

These officers were brought together to discuss problem areas pertaining to developmental activities in the Automatic Data Processing/Management Information Systems.

PALS Group's primary interest is in the area of the "Army in the Field" while the others have the responsibility for the overall Army Automatic Data Processing/Management Information Systems.

After the morning briefing session, General DePuy was honored at a luncheon held at Mifflin Hall and hosted by General Condit.

CDC Symposium

Ft. Belvoir, Va. . . . More than 150 delegates representing virtually all U.S. Army commands gathered at Ft. Belvoir, Va., recently to attend the Combat Developments Command Organization Phase Symposium.

As Major General Curtis Chapman, Deputy Commanding General, pointed out in his welcoming address, one of the enormous tasks confronting the Army today is how to maintain a combat ready force that is properly staffed and equipped to meet world-wide requirements in the face of continually diminishing resources. Recent policy statements by the Army Chief of Staff and other actions directed by Headquarters, Department of the Army, place increasing emphasis on the need for austerity in all phases of combat developments.

One area in which the Combat Developments Command can make major contributions with almost immediate and significant cost reductions is in the organizational phase of combat developments. Basis of Issue Plans (BOIP), Manpower Authorization Criteria (MACRIT), and Tables of Organization and Equipment (TOE) are requirements-determining documents which have far reaching influence on the cost of manning, equipping, and financing the Army in the field. BOIP are the principal bases for determining the amount and type of new materiel to be procured. MACRIT is used for determining the number of non-supervisory combat support and service type personnel in TOE. Both the BOIP and MACRIT are prime determinates in arriving at personnel and equipment requirements in TOE. TOE profoundly affect the Army budget, Army training, efficiency and operational readiness, and the overall management of resources. They must reflect only the minimum essential personnel and equipment required by a unit to perform its desired mission.

One of the principal objectives of the Organization Phase Symposium was to provide a forum for exchanging ideas on how CDC can assist the Army in maintaining a combat ready force with fewer personnel and equipment. Specifically, the objectives of the symposium were to provide information and guidance on the development of BOIP, MACRIT and TOE; to identify and resolve problems in the organization phase of the combat developments process; and to improve procedures for the development of organization phase products through personal contact with the personnel involved. The attainment of these objectives should contribute significantly to the ultimate goal of developing a combat ready force with minimum resources.

The first day of the symposium was devoted primarily to the use by Department of the Army of organization phase products and to the impact of these products on the organization and structure of the Army in the field.

During the second day there were two parallel work shop sessions which highlighted the review of current and proposed procedures, policies and methodologies. In addition to the open discussion to surface problem areas, these work shop sessions also provided an opportunity for personnel engaged in related activities to meet and discuss their common interests. These work shop sessions gave added emphasis to the need for austerity in requirements and high quality in organization phase products, the two keynotes in the symposium objectives.

The final session on the third day was devoted to reports on the conclusions and recommendations developed during the symposium.

In closing the symposium Colonel James L. Riffe, Director of Organization, Headquarters, US Army Combat Developments Command, urged all personnel who are engaged in the development of TOE, BOIP, and MACRIT criteria to seek more efficient and economical methods in producing these organization documents. He also stressed the need for innovation and imagination in all organization phase work and the initiative to follow through on new ideas and the full utilization of modern technology.

POW Study

Ft. Bragg, N.C. . . . A Combat Developments Command prisoner of war study, which recommends establishment of recuperation centers for returning prisoners, is now being reviewed by the Army.

The study, conducted by CDC's Special Operations Agency, calls for an overhaul of the Army's POW training program.

Despite the experience of U.S. POWs during the Korean war, the study found existing Army doctrine on the subject scattered through manuals and regulations. It concluded that, for the most part, the possibility of capture and internment by the enemy is ignored.

Conducted by a team led by Major John C. Carline and Herschel C. Nance of Ft. Bragg, N.C., the analysis suggests an American Soldier captured by a communist foe knows little of the techniques and beliefs of the "guards" he faces.

Carlin said communist jailers have only one motive for all their acts—political exploitation for propaganda purposes.

The Bragg Team recommends that training be revised so that troops are told what they may do as POWs. Today's generalized training emphasizes things a Soldier shouldn't do. Development of what the CDC agency called "an overall resistance training program" is also urged.

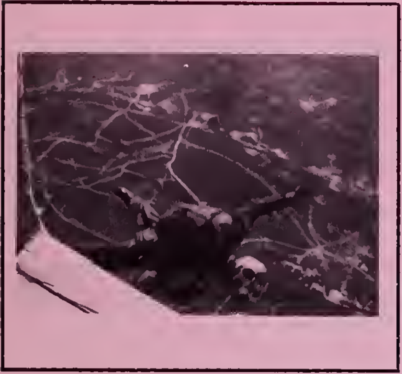
Recuperation centers for POWs would help reduce the impact of cultural shock on the Soldier. In these centers Soldiers could be reunited with their families and adjust to changes at their own pace, the study said.

While calling for changes in POW doctrine and training, the team praised existing programs to aid the families of prisoners. Assignment of family services and assistance officers to each next of kin drew special endorsement.

The team urged continued emphasis on Defense Department policies calling for all measures to ease a POW's return and readjustment. Every step in his processing, the analysis said, must be designed to keep POW welfare and morale the foremost consideration.

As of November 20, 1971, the Defense Department listed 407 U.S. military—including 65 Soldiers—as enemy prisoners. Nearly 1000 men, including 245 Soldiers, are classed as missing.

Airborne



Ft. Ord, Calif. . . . Climaxing the parachute ground training recently completed by the Experimentation Brigade Support Battalion, a troop unit of the Army Combat Developments Experimentation Command, headquartered at Ft. Ord, the men taking the Adventure Training courses, put their new learning into practice with one jump each, at the Fritzsche Air Field at Ft. Ord. Captain Allen E. Dee, commanding officer of the Brigade's Headquarters Company, was in charge of operations in this phase of the Army's new series which is designed to give realistic safety and survival training (and experience) to its Soldiers. Never can tell when it'll come in handy in their lives—military or civilian.

CDEC Chaplain

Ft. Ord, Calif. . . . Captain Patrick John Bohan (above) has been assigned to the US Army Combat Developments Experimentation Command at Ft. Ord as its Catholic Chaplain. He comes to CDEC from duty as Assistant Division Artillery Chaplain with the 101st Airborne Division Artillery in Vietnam.

He has been on active duty since September 1969, with three years prior to that date spent as Chaplain in the Ohio National Guard. He is from Cleveland, Ohio.

Besides the posts named, he has also served as Chaplain at Ft. Hood, Tex., with 2nd Brigade, 2nd Armored Division.

Chaplain Bohan graduated from John Carroll University with a degree in Engineering in 1955. He also attended Borromeo Seminary in Cleveland, receiving in 1957 his PhD in Philosophy. He also studied Theology from 1957 until 1960 at St. Mary's Seminary.

Chaplain Bohan attended the Chaplains School at Ft. Hamilton, N.Y., after his entry into the service.

During his short Army career, he has earned the Bronze Star Medal, the Air Medal, Army Commendation Medal, National Defense Medal and Vietnam service and Campaign ribbons.

(US ARMY PHOTO)

Night Vision

Ft. Benning, Ga. . . . One evening in early November, the Commanding General of Ft. Benning and over 200 members of the Infantry community, Combat Developments Command Headquarters and various CDC agencies were assembled at North Ruth Range to participate in the second, and the largest, demonstration of night vision and other electro-optical equipment ever held at Ft. Benning.

The demonstration was sponsored by the Combat Developments Command Infantry Agency with the combined support of the United States Army Electronics Command Night Vision Laboratory, Evans Laboratories, the Infantry Center, Infantry School and the Infantry Board.

Seventeen pieces of night vision equipment valued in excess of five million dollars were delivered to Ft. Benning by the Night Vision Laboratory for this demonstration. The array of equipment included a second generation Small Starlight Scope and Crew Served Weapons Sight, a Sniper Rifle Scope, a Big Screen Night Observation Device, Night Vision Goggles with Aiming Light, three Pocket Scopes, two Rifle-

Mounted Multipurpose Infrared Sensors, a Hand-Held Thermal Viewer, a Utility Night Observer (thermal), a Pulse Gated Long Range Night Observation Device, a Thermal Long Range Night Observation Device, a Vehicle-Mounted Far Infrared Target Indicator, the TOW Gated Night Sight, the Dragon Thermal Night Sight, and a Perimeter Television System. Evans Laboratories demonstrated a lightweight Hand-Held Laser Rangefinder and a Laser Target Designator/Tracker System.

The display provided an excellent opportunity for military personnel to operate the various items of equipment that will be employed by Infantry, Armor and Artillery units within the next five to ten years. The equipment demonstrated represented the very latest in development of image intensification, thermal imagery and laser technology. Because of the outstanding success of this demonstration, the DA staff has requested a similar demonstration for Pentagon personnel. Plans are also underway at Ft. Knox, Ky., for a similar exercise. The Infantry Agency will host demonstrations of this type at periodic intervals in the future to continually update the Infantry community on progress and development of new items of Infantry equipment.

Containerization

Ft. Eustis, Va. . . . A major logistical challenge facing the Army in the field and CDC's Transportation Agency today is containerization. This agency recognizes the need to answer the question "What must be accomplished for the Transportation Corps to be able to move containers efficiently?"

Recognizing the enormity of the problem, the agency has formed a container committee to provide necessary coordination in solving container problems and to standardize the development of concepts, doctrine, and materiel requirements and their impact on container operations. Presently, the agency is working on several container related actions:

Trans-Hydro Craft Study, is identifying the watercraft to handle containers during logistics over-the-shore (LOTS) operations and the accompanying materials handling equipment (MHE) to handle the containers.

Offshore discharge of Container Ship (OSDOC II) is a test of the discharge of a non-self-sustaining container ship over the beach.

Input to the Army in the Field Container System Study (AFCSS) will provide a transportation distribution system to support the container operations of the future.

Integrated Transportation Management Information System (ITMIS) is developing an automated information system to handle containers in the transportation system.

Heavy Lift Helicopter (HLH) study addresses the movement of containers over the beach and other air movements of containers.

The agency has submitted capability requirements to US Army Materiel Command for MILVAN chassis. It is envisioned this chassis will be able to transport MILVAN containers as well as standard containers and have the capability of transporting bulk cargo.

LOG LIFT II will be a test of aerial port clearance by helicopters in the curent inventory, CH–54's and CH–47's.

As part of a recognition of the importance of container operations, the committee is also in the planning stages of developing a field manual on transportation container operations which will provide instructions and doctrine on the transportation system that will support container operations for the Army in the field. Also being developed is a terminal service container handling section that will augment current terminal service company tables of organization and equipment in order to be able to handle the increase in container operations in the future.

The agency container committee will monitor input from these container related actions along with other research in order to insure that the Army in the field is assured of the best as well as alternative solutions to handle containers in the transportation system.

Demonstration

Ft. Eustis, Va. . . . The USACDC Transportation Agency made the arrangements for an unusual demonstration held on the banks of the James River at Ft. Eustis on 7 December 1971.

Members of the Ft. Eustis Center Team saw a Coast Guard air cushion vehicle, the USCG SK–5, in action. The demonstration was conducted by the ACV Evaluation Unit of the 5th US Coast Guard District to acquaint the Center Team members with ACV's. Lieutenant Commander Keehn from the Coast Guard first gave a brief description of the vehicle and its use in Coast Guard missions and then gave rides to Major General Howard F. Schiltz, Commanding General of Ft. Eustis; Colonel Frederick P. Howland, Commanding Officer of the USACDC Transportation Agency; and other members of the Center Team.

ACV's are of particular interest to the Center Team at this time, since they are being considered as candidate craft for the Army fleet in an ongoing study at the Transportation Agency—the Trans-Hydro Craft Study—scheduled for completion in 1972.

BG Connor Retires

Brigadier General Robert E. Connor, Chief of Staff of the US Army Combat Developments Command, retired last month, after serving more than 32 years of active service.

A native of Cincinnati, Ohio, General Connor graduated from the University of Cincinnati with a bachelor of arts degree. His military education includes the Command and General Staff College, the Armed Forces Staff College, and the Canadian National Defense College.

The general was no stranger to the Combat Developments Command when he arrived in January, 1969, for he had served as Chief of Staff for CDEC at Ft. Ord, Calif., in 1957. General Connor's list of assignments includes Company Commander, 2d Infantry, Iceland and England; Commanding Officer, 3d Battalion, 2d Infantry; Executive Officer, 2d Infantry; Branch and Division Chief, ODCSOPS and ACS for Reserve Components, Pentagon; Chief of Staff, Combat Developments Experimentation Command, Ft. Ord, Calif.; Commanding Officer, 87th Infantry, 2d Infantry Division, Ft. Benning, Ga.; Deputy Chief of Staff, I Corps, Korea; Assistant Division Commander, 4th Infantry Division, US Army Vietnam; and Director of Training, Hq MACV.

Among the personal decorations held by General Connor are the Distinguished Service Medal, the Silver Star with Oak Leaf Cluster, the Legion of Merit, the Bronze Star with Oak Leaf Cluster, the Purple Heart, the Air Medal with 10 Oak Leaf Clusters, and the Croix de Guerre.

General Connor and his wife will reside in Northern Virginia.

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